Changing Treatment Regimens for HIV Infection: Impact on Referral Patterns and Training Needs of Family Physicians

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Background: **New antiviral medications and laboratory testing have revolutionized the care of patients infected with the human immunodeficiency virus (HIV). The development of complex treatment regimens has intensified debate about whether care should be restricted to experts in HIV care. Few studies detail how these new treatment regimens are affecting family physicians' desire to continue providing care or need for additional training.**

Methods: **A questionnaire eliciting personal, training, and practice demographics and attitudinal information was distributed to family physicians attending the 1996 Scientific Assembly of the American Academy of Family Physicians who completed an HIV continuing education workshop.**

Results: **The questionnaires were completed by 202 family physicians from 48 states. More than 60 percent had received training or had practiced in states with a high rate of HIV, and 143 (70 percent) had cared for at least 1 HIV-infected patient in the previous 6 months. Ninety-five percent did not expect to curtail their provision of care and believed that family physicians should become more active in the care of HIV-infected patients. Medical journals were the most requested format for ongoing education in this area, with combination antiviral therapy and new staging laboratory tests the most requested topics.**

Conclusion: **The recent changes in HIV care regimens did not appear to have a major impact on family physicians' desire to continue to provide care for HIV-infected patients. Professional societies responsible for certification and continuing education might be interested in additional surveys to validate these results among larger samples nationwide. (J Am Board Fam Pract 1999;12:115-9.)**

Many family physicians have served as primary care providers for patients infected with human immunodeficiency virus (HIV) since the beginning of the acquired immunodeficiency syndrome (AIDS) epidemic.[1,2] Several federal and state programs have been developed to train primary care physicians to provide high-quality care while encouraging them to accept HIV-infected patients into their practices.[3] One such program, the AIDS Education and Training Centers, has received more than $100 million in federal funding in the past decade.[4]

Licensing has recently been granted to several promising new antiviral agents that, when used in combination with existing medications, often have a profound and lasting effect on HIV suppression.[5] These new treatment regimens, along with the ultrasensitive tests that gauge the viral load of HIV within the plasma of an individual patient, have revolutionized HIV-infected patient care in the last 2 years.[6,7]

Unfortunately, physicians prescribing these multiple drug regimens must deal with an extensive list of drug-drug interactions, lengthy side-effect profiles, and a rapid tendency for the drugs to become ineffective as a result of viral resistance if not used appropriately, which are just some of the major challenges of these new therapies.[8]

Studies completed before these new medications were available have also shown, not unexpectedly, that the outcome of HIV care in an individual patient is highly influenced by the relative experience of the provider and the health care facility.[9,10] Although these studies evaluated the management of common opportunistic infections associated with HIV disease, providers instituting and maintaining complicated antiviral regimens can reasonably expect similar results.

All of these factors have led several prominent physicians to call for HIV care providers to be re-

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Table 1. Number of Patients Infected With Human Immunodeficiency Virus (HIV) Seen by Study Respondents in Previous 6 Months.

Number of HIV-Positive Patients	Percent of Respondents (n = 202)
0	29
1 to 5	43
6 to 10	3
11 to 20	13
More than 20	12

stricted to certified HIV-AIDS experts.[11] The certification process remains unclear, however, because no specific training experience or qualifying examination exists to designate a physician as an expert in HIV disease.[12] Many of these physicians have advocated that existing medical specialists (ie, those specializing in infectious disease or oncology) have the most appropriate training to assume this role.

Many other health care providers for HIV-positive patients have responded to this proposal with a counterview.[13] They assert that, despite the complexity of the new treatment regimens, HIV disease remains a chronic disease best treated by primary care physicians with consultation from specialists when necessary.

While this debate continues, managed care organizations have begun to make decisions about who should provide care to patients with HIV disease. Although some organizations have restricted care to a few specialists within their systems, most appear to be encouraging their primary care physicians to maintain a care-providing role.[14] As the disease becomes more complex and time-consuming, however, primary care physicians might not be able financially to afford to provide this care.

When we reviewed the medical literature, we found few studies describing the impact that recent changes in treatment had on the practices of family physicians who are providing HIV care.[15] Evidence is also lacking on how those family physicians opting to continue care will receive the necessary training to ensure provision of high-quality care.

For these reasons, we surveyed a sample of family physicians who were either currently providing HIV care or attending a continuing medical education workshop in anticipation of future care provision.

Table 2. CD4 Cell Count in Study Respondents' Patients Infected With Human Immunodeficiency Virus.

CD4 Cell Count	Percent of Patients
> 500/μL	31
200 - 500/μL	27
50 - 199/μL	18
< 50/μL	17

Methods

A survey instrument was developed to (1) gauge family physicians' experience with HIV care as of October 1996, (2) determine the impact they believe new treatment regimens might have on their future practice patterns, and (3) describe for those opting to continue caring for HIV-infected patients how they plan to acquire the skills necessary to provide high-quality care. After a pilot test with a focus group, we surveyed all family physicians attending the October 1996 Scientific Assembly HIV workshops sponsored by the American Academy of Family Physicians.

The survey instrument consisted of a 15-item questionnaire in which 9 items pertained to personal, training, and practice demographics; 2 items described the number of HIV-positive patients seen and their immunologic status; 1 item with 11 distinct clinical care scenarios depicted possible HIV referral patterns; 1 item contained eight possible topics for ranking future training sessions from 1 to 8 (with 1 being the most desired type of training); 1 item described 8 possible learning for-

Table 3. Summary of Referral Patterns of Physicians Who Saw at Least 1 Patient Infected With Human Immunodeficiency Virus (HIV) During the Previous 6 Months (n = 143).

Referral Pattern	Percent
Do risk assessment routinely, including sexual and drug history	78
Do HIV testing in office at patient's request	91
Perform initial staging of the newly diagnosed HIV infection	75
Refer the patient after initial staging	24
Develop initial treatment plan, including combination antiviral regimens, without consultation	75
Treat opportunistic infections when they develop	78
Obtain consultation from specialist when they treat an opportunistic infection	80
Provide care to the terminally ill patient	56

Table 4. Desired Educational Content of Future Training for Treatment of Human Immunodeficiency Virus Infection (HIV) (n = 202).

Educational Content	Score*
Combination antiviral regimens	2.12
New staging tests and viral loads	2.18
Treatment of opportunistic infections	2.99
New HIV tests	3.60
Needle-stick prophylaxis	4.00
Psychosocial issues	4.34
Terminal care issues	4.48
Infection control	4.67

*Rank 1 through 8 with 1 being most desired.

Table 5. Desired Educational Format for Training for Treatment of Human Immunodeficiency Virus (HIV) Infection

Format	Score*
Medical journal	2.45
National family practice meeting	2.66
HIV-specific newsletter	2.70
HIV-specific conference, university	3.01
State family practice meeting	3.24
Internet	3.90
AIDS Education and Training Centers-sponsored event	4.09
Hands-on preceptorship	4.29

*Rank 1 through 8 with 1 being most requested.
AIDS - acquired immunodeficiency syndrome.

mats (with 1 being the most desired format for future training); and 1 item contained four attitudinal statements by which respondents indicated their level of agreement by choosing one of four options of a Likert scale (1 strongly disagree, 2 mostly disagree, 3 mostly agree, 4 strongly agree).

Means and percentile distributions of personal, training, and practice demographics were obtained where applicable. Student *t*-test, chi-square test, and correlation analysis were used to determine the significance of the following variables: age, sex, training completed after start of HIV-AIDS epidemic, HIV incidence of state where family practice residency occurred, HIV incidence of state where currently practicing, and number of HIV-positive patients seen in the previous 6 months.

A state was considered to have a high incidence of HIV if its 1996 annual AIDS case rate exceeded 15 per 100,000 population. We chose 1985 as the year after which training was classified as taking place during the HIV-AIDS epidemic. The number of HIV-positive patients seen by a physician was grouped into 3 categories: 0, 1 to 6, and more than 6 (which included groups 6 to 10, 11 to 20, and more than 20).

Results

The questionnaire was completed by 202 family physicians from 48 states (98 percent response rate). The respondents' average age was 40.5 years, 75 percent were male, 88 percent were board certified, and 50 percent had completed their residency training since 1985. Of the 202 respondents, 125 (62 percent) received their family practice training and 136 (65 percent) currently practiced in states with a high incidence of HIV.

Practice sites included 11 percent private solo practice, 48 percent private group practice, 21 percent public hospital or clinic, and 18 percent private hospital or clinic. Thirty-four percent of these sites was located in urban settings, 36 percent in suburban areas, and 30 percent in rural areas.

Tables 1 and 2 display the number of HIV-positive patients seen in the previous 6 months and their CD4 cell count distribution, respectively.

There were no statistically significant differences determined in referral pattern (Table 3), desired educational content (Table 4), desired educational format (Table 5), attitudes toward future care participation (Table 6), and opinion of current training opportunities (Table 7) by age, sex, training during HIV-AIDS epidemic, training or practice in high-incidence area, or number of HIV-positive patients seen in the previous 6 months.

Discussion

If this sample is representative of family physicians nationwide who are currently providing care to

Table 6. Family Physicians' Attitudes Toward Future Participation in Care of Patients Infected With Human Immunodeficiency Virus (HIV).

Attitude	Percent
Agreed family physicians should take a more active role in HIV primary care	95
Disagreed that HIV care has become too complicated for family physicians to remain as primary care providers	83

Table 7. Family Physicians' Attitudes Toward Current Training Opportunities in Care of Patients Infected With Human Immunodeficiency Virus (HIV).

Attitude	Percent
Not enough HIV care training opportunities for primary care physicians	40
Training opportunities not unduly focused toward the HIV specialist	87

HIV-positive patients, recent changes in treatment regimens and laboratory testing do not appear to be significantly influencing these providers to curtail their HIV treatment activity. In fact, within this cohort, most appear comfortable providing the full spectrum of care to patients, even those who are seriously immunosuppressed. These physicians believed they request consultation from specialists when it is appropriate, even though they had seen relatively few HIV-positive patients in the previous 6 months.

A somewhat surprising result of this survey was that the physicians' referral patterns and attitudes toward providing care were not significantly influenced by the relative HIV incidence of the state in which they received their training or were currently practicing. As well, training after the beginning of the HIV-AIDS epidemic did not make physicians more likely to assume a larger role in the care of these patients.

This result could be a consequence of sampling a group of physicians already providing care and voluntarily attending continuing education on HIV disease. This cohort might be less likely to be influenced by the recent changes than would more random samples of family physicians nationwide in areas with a lower incidence of HIV.

It is possible that soon the primary versus specialist care debate will foster the development of criteria whereby someone can be certified as an expert in HIV care. The professional board and organizations within family medicine will need to take an active role to ensure that family physicians who are capable of providing high-quality HIV care can continue to do so.

Unfortunately, this survey did not include a mechanism to assess whether those family physicians most willing to provide care are also those who are providing the best outcomes for their patients. To assure that these family physicians provide high-quality care, an even more aggressive educational program conducted in collaboration with existing federal, state, and private initiatives seems indicated. The results of this survey might provide some useful suggestions for those responsible for planning future training for primary care physicians.

Regardless of the outcome of HIV expert certification, it appears logical that the best trained and most experienced physicians are the most likely to provide the highest quality of care. Whether these physicians are primary care or specialty trained appears secondary to the breadth of their training and experience in providing care to HIV-infected patients.

It is hoped that primary care and specialty physician organizations can work together to encourage limiting the provision of HIV care to the most experienced physicians and insist on training opportunities to assure that these physicians maintain a high quality of care. In areas of the country where these training opportunities are not available (ie, rural states with a low incidence of HIV), a co-management program should be developed between primary care providers and specialists at centers where there is a higher incidence of HIV.

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